REMARKS

Withdrawn claims 29-33 have been amended to depend from amended claim 10. Rejoinder of claims 29-33 is requested.

Claims 1, 2, 6, 7, 10, 11, 17, 19 and 22 were rejected under 35 U.S.C. 102(b) as being anticipated by Barber. Claims 1, 2, 6-11, 17 and 19-22 were rejected under 35 U.S.C. 102(e) as being anticipated by Inoue.

Claims 1 and 10 have been amended to include the limitations of dependent claims 4 and 18, respectively. Claims 1 and 10 now recite that the low-acoustic-impedance material comprises a SiOC material. The use of SiOC material for the low-acoustic-impedance material support of a resonator is neither disclosed nor suggested by either Barber or Inoue.

Claims 1 and 10 are thus not anticipated by Barber.

Claims 8, 9, 20 and 21 were rejected under 35 U.S.C. 103(a) as being unpatentable over Barber. These claims are asserted to be in condition for favorable action and allowance at least for the reasons recited above with respect to claims 1 and 10. There is no teaching or suggestion in the art for the use of material thicknesses as recited in the claims in combination with a SiOC material low-acoustic-impedance layer.

Claims 3-5, 16 and 18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Barber/Inoue in view of Kuramasu. Claims 4 and 18 have been canceled and incorporated into claims 1 and 10, respectfully. Applicants respectfully traverse the rejection as to the subject matter of dependent claims 4 and 18.

Barber (EP 1 158 671) discloses an acoustic mirror comprising several layers having an acoustic impedance mismatch (see figure 2 and paragraph 12). In particular, Barber discloses an acoustic mirror in which the high impedance materials are determined thanks to their elastic constant, and whose number is reduced, for instance 4 (see figure 4 and paragraph 33). However, Barber does not disclose an acoustic support structure with one or several low acoustic impedance layers comprising SiOC.

Inoue (US 2005/0093399) discloses (see figure 1) an acoustic resonator comprising a piezoelectric material 103 and an acoustic multilayer 110. In particular, the acoustic multilayer 110 comprises alternative layers having acoustic impedance mismatch (see paragraph 23). The layers 112 of low acoustic impedance are made with SiO_2 and the layers 111 of high acoustic impedance are made with AlN. However, Inoue does not disclose an acoustic resonator comprising one or several layers of SiOC.

Kuramasu (JP 09275323) relates to surface acoustic wave devices. In particular, Kuramasu discloses (see figure 1) a 2-layer configuration 22 to protect the interdigital transducers 21 set on the surface of the piezoelectric substrate 1 in which the surface acoustic waves travel. The 2-layer configuration comprises a silicon carbide SiC film for an upper layer, and a silicon oxide SiO_2 or a silicon oxide carbide SiOC film for a lower layer. The aim of the 2-layer configuration is to ***prevent a short-circuit between adjacent transducers*** 21 during the deformation of the piezoelectric material 3 when a surface acoustic waves travels.

To the extent Kuramasu discloses use of a layer of SiOC, it does so in the context of a short circuit protection device. There is no teaching or suggestion for using a SiOC layer as a low-acoustic-impedance material layer which supports an acoustic resonator. In Kiramasu, the SiOC is not used in an acoustic resonator support material, nor is there any suggestion for the use of such a material layer in that fashion. There is no indication in Kiramasu for the substitution of SiOC material for the low-acoustic-impedance layer in either Barber or Inoue. The Examiner has not made out the prima facie case for a Section 103 rejection.

The suggestion in Kiramasu for interchanging silicon oxide and silicon oxide carbide is limited to such use, as taught by Kiramasu, as a transducer insulating material, and not as a suggestion for such use in connection with supporting an acoustic resonator.

Moreover, Kuramasu uses SiOC material only for its mechanical and electrical properties and does not disclose nor indicate that SiOC material may be used to get a low acoustic impedance layer, which is particularly suitable for an acoustic resonator support in the manner claimed by Applicants. On the contrary, Kuramasu only discloses the use of a 2-layer configuration in order to protect the interdigital transducers. By the way, the 2-layer configuration is set on the interdigital transducers, and not located between the interdigital transducers and the substrate where it would function as a support.

Furthermore, the SiOC layer is only disclosed in combination with a SiC layer (see tables 1 to 3 and reference 53). Now, Barber discloses (see paragraph 29 and table 1) that the AlN material and the Si_3N_4 material do not provide the kind of impedance mismatch desired in acoustic devices, and that the SiC acoustic impedance is comprised between the AlN acoustic impedance and the Si_3N_4 acoustic impedance. Moreover, Barber also prefers a low impedance layer comprising chemical vapor deposition or sputter deposited SiO_2.

Therefore, the person skilled in the art, knowing Barber or Inoue, would have no incentive to look at Kuramasu which only relates to short-circuit protection layers for interdigital

transducers. Moreover, even if he had looked at Kuramasu, he would have no incentive to use a 2-layer configuration comprising a SiOC layer and a SiC layer, since Barber preferably uses a CVD deposited SiO_2 layer for low acoustic impedance layer, and also suggests that SiC is unsuitable material for high acoustic impedance layer.

In view of the foregoing, Applicants respectfully submit that the rejection of claims 4 and 18 is without merit and should be withdrawn.

Applicant respectfully submits that the application is in condition for favorable action and allowance.

Dated: November 5 ,2007

Respectfully submitted,

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